Will Privacy & Security Concerns Stall the Adoption of Autonomous Automobiles?

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Purpose of the study

We want to learn what adult-aged consumers think about the autonomous automobile. Specifically . . .

• Do consumers have concerns about their security and privacy?
• Do consumers feel enough trust to buy an autonomous vehicle?
• Do consumers feel enough trust to ride in an autonomous vehicle?
• Do consumers believe that OEMs will take appropriate steps to secure the autonomous vehicle?
• Do consumers recognize the safety and convenience implications?
• Are consumers worried about hackers seizing control of the autonomous automobile?
• Do consumers think autonomous automobiles will make their life better or worse?
Adult-aged consumers located in the United States were surveyed in November 2017.

<table>
<thead>
<tr>
<th>Consumer survey response</th>
<th>Freq</th>
<th>Pct%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total sampling frame</td>
<td>28,700</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total returns</td>
<td>1,081</td>
<td>3.8%</td>
</tr>
<tr>
<td>Rejected surveys</td>
<td>68</td>
<td>0.2%</td>
</tr>
<tr>
<td>Final sample</td>
<td>1,013</td>
<td>3.5%</td>
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</tbody>
</table>
Privacy persona and the autonomous automobile
Three Personas*

**Privacy centric** - Events that minimize your sense of privacy or diminish the safety of your sensitive personal information will have a significant impact on your behavior.

**Privacy sensitive** - While you say that privacy is important to you, it does not affect your behaviors or information sharing practices.

**Privacy complacent** - You really don’t care very much about the sharing or selling of your sensitive personal information.

*These personas or privacy profiles were developed by Ponemon Institute more than a decade ago based on privacy trust research.
Privacy profile today and five years ago

- Privacy centric: 19% today, 19% five years ago
- Privacy sensitive: 58% today, 52% five years ago
- Privacy complacent: 23% today, 22% five years ago
If you became more concerned about the privacy and security of your personal data over the past five years, why?
More than one response allowed

- I became a victim of a data breach: 65%
- I use social media more often: 58%
- More of my personal information including medical records is being shared: 50%
- I am using my mobile devices such as smartphones and tablets more often: 49%
- I am using location tracking devices more often: 33%
- I use mobile payment methods including mobile wallet: 27%
- I know someone who became a victim of an identity theft: 21%
- I have growing concerns about government surveillance: 18%
- I became a victim of identity theft: 15%
The survey addressed three areas of possible concern among consumers:

**Privacy in an autonomous automobile**
For instance, the ability to prevent the car manufacturer, government or other companies from listening in or recording your private conversations while riding in the car.

**Security in an autonomous automobile**
For instance, the ability to prevent hackers from remotely seizing control of your car.

**Safety in an autonomous automobile**
For instance, the ability to brake before a cash.
Concern about security, safety and privacy in an autonomous automobile

1 = not concerned to 10 = very concerned
Extrapolated average values reported
Concern about security, safety and privacy by persona
1 = not concerned to 10 = very concerned
Extrapolated values reported
Level of trust in the idea of turning control of driving to an autonomous automobile

1 = low trust to 10 = high trust

Extrapolated average value = 5.22
Do you believe the benefits of an autonomous automobile will outweigh your concerns about privacy or security?
I believe manufacturers of autonomous automobiles should provide the following:

- Tell me what security precautions are taken to prevent the automobile from being hacked: 77%
- Let me know how I can protect my privacy and security within the automobile: 65%
- Allow me to control what information is collected within the automobile: 56%
- Compensate me if my information is misused or stolen: 46%
- Tell me what information is collected about me and how it is used: 32%
- Tell me when my personal information is shared with businesses and government: 26%
- Provide assurance that my privacy and security is safeguarded: 19%
- None of the above: 12%
- Don’t know: 8%
Safety & security in today’s cars
How much time do you spend driving each day?

- Less than 1 hour: 34%
- 1 hour to 2 hours: 21%
- 3 hours to 4 hours: 22%
- More than 4 hours: 23%
How safe do you feel when you are driving in your car?
Have innovations in safety features, such as air bags, roll cages and rear cameras, made you feel safer in your car?

- Yes: 67%
- No: 33%
Do you feel less safe in your car when driving in certain locations and times?

Yes: 55%
No: 45%
If yes, where and when do you feel less safe?
More than one response allowed

- During rush hour: 65%
- In high crime areas: 56%
- Late at night: 47%
- On crowded city streets: 32%
- On state highways: 10%
Does the type of vehicle you drive make you feel safer on the road?

- Yes: 59%
- No: 41%
If yes, in which vehicles do you feel safest?

- SUVs: 32%
- Light trucks: 26%
- Vans: 23%
- Sedans: 17%
- Other: 2%
Perceptions about the autonomous automobile
Do you plan to purchase an autonomous automobile?

- Yes, as soon as it is available: 17%
- Maybe, after I see them on the road and they look safe: 26%
- Maybe, if it is affordable: 21%
- Unsure: 11%
- Never: 25%
If yes or maybe, what is the most important reason for purchasing an autonomous automobile?

- Enables me to multi-task when commuting to work: 27%
- Relieves the stress of having to drive: 24%
- Reduces traffic accidents: 19%
- Ensures I have transportation when I can no longer drive: 12%
- Will have a positive impact on the environment: 10%
- Automatically finds the shortest and fastest route to my destination: 6%
- Other: 2%
If never, what is the most important reason for not purchasing an autonomous automobile?

- I enjoy driving: 34%
- I am concerned about the risk of hacking: 30%
- I do not think they are safe: 15%
- I do not want to give up control to technology: 13%
- I am concerned about my personal data that the automobile will collect and use: 8%
If you do not want to purchase an autonomous automobile, would you ride in one?

- Yes: 60%
- No: 24%
- Unsure: 16%
Perceptions about autonomous automobiles
Strongly agree and Agree responses combined

I would prefer to have a partial autonomous automobile so I can drive when I want to
57%

I believe automobile manufacturers will only make autonomous vehicles that are safe and secure
56%

I would rather manually drive my car than use an autonomous automobile
53%

Autonomous automobiles will make commuting to work and running errands less stressful
49%

Autonomous automobiles will make driving safer
45%

Autonomous automobiles will make my life easier and make traveling more fun
42%
What impact will autonomous automobiles have on traffic accidents?

- Significantly increase traffic accidents: 8%
- Increase traffic accidents: 15%
- No change in traffic accidents: 37%
- Decrease traffic accidents: 23%
- Significantly decrease traffic accidents: 17%
In your lifetime, which of the following advances in technologies have changed or will change your life the most?
Three responses allowed

- Internet: 64%
- Mobile phones: 49%
- Social media (Facebook, Twitter, LinkedIn): 47%
- Autonomous automobiles: 40%
- Laptop computers: 31%
- Online shopping: 23%
- Microwave ovens: 15%
- Internet of Things: 13%
- Space travel: 11%
- Drones: 7%
How will autonomous automobiles change your life?

- For the better: 41%
- For the worse: 19%
- No change: 40%
Demographics
Gender and Age Range

Adult-aged consumers located in the United States were surveyed in November 2017.
Highest Level of Education

Adult-aged consumers located in the United States were surveyed in November 2017.
Household income
Adult-aged consumers located in the United States were surveyed in November 2017.
United States regional location

Adult-aged consumers located in the United States were surveyed in November 2017.
Caveats

There are inherent limitations to survey research that need to be carefully considered before drawing inferences from findings. The following items are specific limitations that are germane to most web-based surveys.

• **Non-response bias**: The current findings are based on a sample of survey returns. We sent surveys to a representative sample of individuals, resulting in a large number of usable returned responses. Despite non-response tests, it is always possible that individuals who did not participate are substantially different in terms of underlying beliefs from those who completed the instrument.

• **Sampling-frame bias**: The accuracy is based on contact information and the degree to which the list is representative of adult-aged individuals who drive automobiles. We also acknowledge that the results may be biased by external events such as media coverage. Finally, because we used a Web-based collection method, it is possible that non-web responses by mailed survey or telephone call would result in a different pattern of findings.

• **Self-reported results**: The quality of survey research is based on the integrity of confidential responses received from subjects. While certain checks and balances can be incorporated into the survey process, there is always the possibility that a subject did not provide a truthful response.
Questions?

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